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# BLACK BOOK-FITCH RATINGS:
## VEHICLE DEPRECIATION REPORT 2019

APRIL 2019

# Vehicle Depreciation Report 2019

## Used Vehicle Prices Unusually Strong in 2018; Vehicle Depreciation to Increase in 2019; Auto ABS Losses to Normalize Higher

New light vehicle sales volume increased in 2018 to 17.3 million, from 17.1 million in 2017. It was the fourth-straight year where the auto industry saw 17+ million units sold. Sales came in ahead of forecast, pushed up by strong economic conditions. The tax cuts and the resulting growth in jobs created an unusually high demand for both new and used vehicles. The new vehicle sales were particularly higher for commercial and rental fleets, while retail sales registered a slight decline. Leasing penetration remains stable at around 30%. Incentive spending remained stable in 2018 as auto manufacturers remained disciplined on price promotions to drive sales of new vehicles.

The tax cuts enabled fleets to take advantage of additional money to replace vehicles, while the slowdown in sedan sales continued. Car segments constituted only 31% of the new sales volume compared to 47% in 2014. SUVs and pickup trucks are driving more new sales, while competition is heating up in these segments as more auto manufacturers introduce new and redesigned products. While retail sales of new vehicles experienced a slight decline, the demand for affordable used vehicles continued to be strong. For all the talk of trucks and SUVs, 2018 was the year of used compact and mid-size sedans. After several years of declining prices, mainstream sedan segments saw a bounce up from the lows in the used market. With lagging growth in real income levels, affordability remained front and center, driving demand higher for used cars. At the same time, franchise dealers embraced marketing and selling of used cars, with some creating separately branded rooftops to make the most of higher margins associated with selling used vehicles. This has enhanced awareness of used vehicles, particularly off-lease returns, and has contributed to keeping used vehicle values high.

Black Book predicts new light vehicle sales to be at 16.8 million in 2019. We expect retail sales to be particularly lower, and incentive activity will likely increase as automakers offset the higher ticket prices of new vehicles and higher interest rate. We expect increased levels of incentives across all three types: more cash on the hood to drive sales, higher APR support in rising interest rate environment, and higher residual value subvention to offset declining residual forecasts. The supply of off-lease returns will continue to grow and peak in 2019. We are forecasting 4.2 million off-lease returns in 2019, about 300,000 more than the previous year. New vehicle sales are challenged to grow as more consumers are influenced to purchase from the increasing supply of affordable off-lease used vehicles.

## Economic Environment To Drive Auto Asset Backed Securities (ABS) in 2019

### U.S. Macro Environment to Support Auto ABS in 2019

The U.S. economy will continue to expand next year, albeit at a slowing pace. Fitch's baseline economic forecast is for 2.3% GDP growth compared with 2.9% for 2018, with the economy still growing above trend, albeit lower than last year. Unemployment is low, under 4%, and household income growth solid, both supporting consumer spending. We expect a strong job market will continue to anchor consumer confidence and ABS performance. Fitch's forecast for new auto sales of 16.9 million units in 2019 is within range of 2018 sales and also Black Book's prediction mentioned above.

The U.S. consumer is benefitting from low unemployment and recent wage growth stemming from the benign macroeconomic backdrop. However, consumer debt is now at its highest absolute levels, driven by student loans, credit cards, and autos. While not our base case scenario, a shock that materially weakens the U.S. economy is a key downside risk to watch for in 2019. Subprime auto ABS pool performance will be more susceptible to volatility in economic performance.

Business models dependent on origination volume are more vulnerable should loan demand soften due to higher borrower costs and stretched affordability, which include subprime auto ABS issuers/lenders, particularly the smaller, less capitalized companies that rely solely on ABS for funding (all of which Fitch does not rate).

## Prime Auto ABS Asset Performance Outlook: Stable | Rating Outlook: Positive

While prime auto ABS asset performance peaked in 2017 and slowed marginally last year, Fitch expects 2019 to be another year of solid performance against a backdrop of supportive macro conditions and auto industry fundamentals. Our auto loan and lease ABS Rating Outlooks are Positive for 2019, consistent with 2018, reflecting stable asset performance and transaction structural protections.

Fitch expects prime auto loan ABS losses to remain within our expectations in 2019, even as they slowly rise closer to 2005–2006 levels. Loss frequency will pick up this year, but severity should be relatively stable on the back of healthy-to-stable wholesale vehicle prices, as indicated by Black Book. Deleveraging transactions and building credit enhancement (CE) will support rating upgrades in 2019.

Underwriting will again be a key factor across the auto lending spectrum for 2019, driven by intense competition so these late-cycle trends are areas ABS investors should be watching. One item that we are watching is consumer debt level which remains at record highs driven by credit cards, student loan, and auto lending, and could push loss frequency higher in 2019. Higher overall interest rates and higher vehicle transaction prices may make buying a vehicle more expensive in 2019. In turn, this may force lenders to stretch terms out further, increase LTVs, and move down the borrower credit spectrum.

Fitch expects the used vehicle market to be relatively stable in 2019 with a slight increase in depreciation versus 2018, driven by elevated supply coming from higher lease return volume and a slow creep in repossessions. Lease penetration and return volume appear to have peaked entering 2019, which could slow used supply growth and provide further relief. If oil rises rapidly, larger vehicle segments could see pressure on used values, but this is not expected by Fitch as oil is forecast to be in the $65 range this year, and thus should not dent ABS performance. Further, consumers may opt for cheaper, smaller used cars and support used values and ABS recovery rates containing severity.

## Subprime Auto Loan ABS
## Asset Performance Outlook: Weakening | Rating Outlook: Stable/Positive

Fitch's outlook for subprime auto loan ABS is stable despite our expectations for asset performance to moderately weaken in 2019. Specifically, for the three subprime platforms rated by Fitch (General Motors Financial's AMCAR; Santander Consumer USA, Inc.'s SDART; and World Omni Financial's WOSAT platform), our Asset Performance Outlook is Stable as losses revert higher but stay within our initial forecasts. Rating momentum remains positive and continues to benefit from structural features mentioned prior. On the new issue side, Fitch continues to account for performance trends in its loss proxies and resulting CE levels by including recent weaker vintage performance, namely 2013-2015 vintages, when deriving ABS transaction loss proxies while also incorporating the weakest recessionary 2006-2009 vintages. Therefore, even if losses rise beyond our expectations in 2019, ABS deals will be able to handle such weaker performance without rating volatility.

Subprime auto loan ABS remains more vulnerable to performance volatility given weaker borrower profiles and acute competition. The smaller, deeper subprime lenders' ABS transactions, which are all not rated by Fitch, could be impacted and drive losses to record levels in 2019. Consolidation of these lenders could pick up in 2019 particularly if sales remain flat and there is limited opportunity for growth combined with intense competition. As losses move higher in 2019, servicing capacity and effectiveness will be a key focus and will test systems and practices at these institutions.

## Auto Depreciation Expected to Rise to 15% in 2019

According to Black Book, the annual depreciation rate on two-to-six-year old vehicles dropped to 12.4% in 2018, which was the lowest in four years. The average depreciation over the last eight years is 12.5%, with 2011 and 2012 registering the lowest due to strong pent-up demand right after the recession. Prior to the Great Recession, annual depreciation of 16% was the norm.

**Black Book Vehicle Depreciation**

| | Annual Depreciation** |
|---|---|
| 2011 | 8.3% |
| 2012 | 10.4% |
| 2013 | 13.3% |
| 2014 | 11.8% |
| 2015 | 13.2% |
| 2016 | 17.3% |
| 2017 | 13.2% |
| 2018 | 12.4% |
| 2019* | 15.0% |

* Forecast

** Depreciation of 2-6 year old vehicles

The demand for used vehicles peaked in 2018 due to a confluence of favorable factors: low interest rates, excellent credit availability with lower delinquencies, extremely high job growth, tax cuts enabling both consumers and commercial buyers to upgrade, increased marketing of off-lease vehicles, and disciplined incentives on new vehicles with rising transaction prices. According to the Bureau of Labor Statistics, 2.6 million new jobs were created in 2018, exceeding the number in the two prior years. These newly hired employees created a strong demand for affordable vehicles. Many of these favorable factors will remain strong in 2019, but will come off their peaks. As a result, the used vehicle market is likely to see higher depreciation in 2019, but should enjoy another year of relatively good performance in comparison to pre-recession performance.

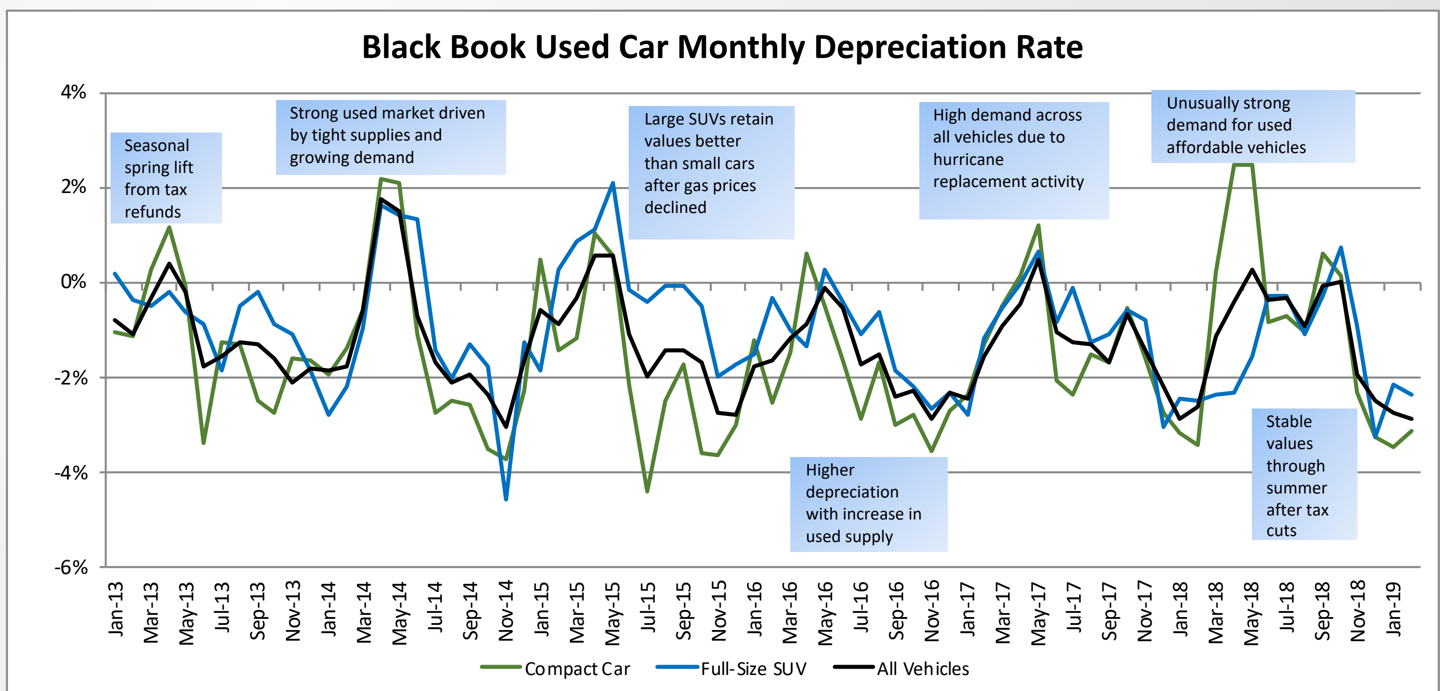
Black Book expects used vehicles to depreciate at the rate of 15% in 2019, a 260 basis points increase from the previous year. While overall economic conditions are expected to remain stable, headwinds on affordability, and rising supplies are expected. Furthermore, faster decline in values of their current vehicles at trade-in and increased financing expense due to higher interest rates would drive slightly fewer car shoppers to replace their vehicle. Rising inventories on dealer lots is a harbinger of slowing sales. At the start of the year, the new vehicle inventory was about 4 million, 3% above prior year.

Access to credit is a key driver in auto sales and valuations. We expect credit availability to remain generally strong in 2019; however, deep subprime is expected to tighten. Furthermore, the implementation of the new accounting regulation CECL will raise loss reserves, particularly in subprime. Even as loan balances reached a record high in 2018, delinquencies are showing a trend of slow increase. Rising loan terms is also a concern, particularly for used vehicles.

Over 60% of used vehicle loan originations now have loan terms in excess of 60 months. Higher depreciation of the underlying asset combined with longer loan term results in higher levels of negative equity. It is increasingly important for lenders to monitor equity levels as loss severity could be higher in 2019. As interest rates have risen, so has the monthly payment amount. A higher monthly payment requirement without a corresponding wage increase, raises the risk of delinquency.

For demand factors, we rely upon reasonable economic forecasts. Currently, Black Book's base residual value models assume a GDP growth of 2.2%, and jobs growth at an average of 160,000 per month in 2019. We are projecting good demand, but not as strong as in 2018, which was unusually high, spurred by tax cuts. Weakness in home sales, and volatility in the stock market could pose additional headwinds for the auto market. With growing uncertainty, it is important to consider the impact of alternative economic scenarios. Black Book's Scenario-Based Residuals, under Federal Reserve's Severely Adverse economic stress test, show a substantial drop of between 12% to 24% in used vehicle values, depending on the vehicle segment.

Gasoline prices remained low in 2018, with the national average keeping at or below $3 a gallon. The Energy Information Administration (EIA) forecasts that the average gasoline price will decline to $2.47 per gallon in 2019, down slightly from the average of $2.73 in 2018, as gasoline inventories remain high. The U.S. became the largest producer of oil and it is expected that the country will continue to be a net exporter of crude oil and petroleum products in the coming years. While OPEC countries may reduce crude oil production, it is expected that the U.S. production growth will offset such decreases. Low gas prices will help in continuing to drive higher demand for SUVs and pickup trucks.



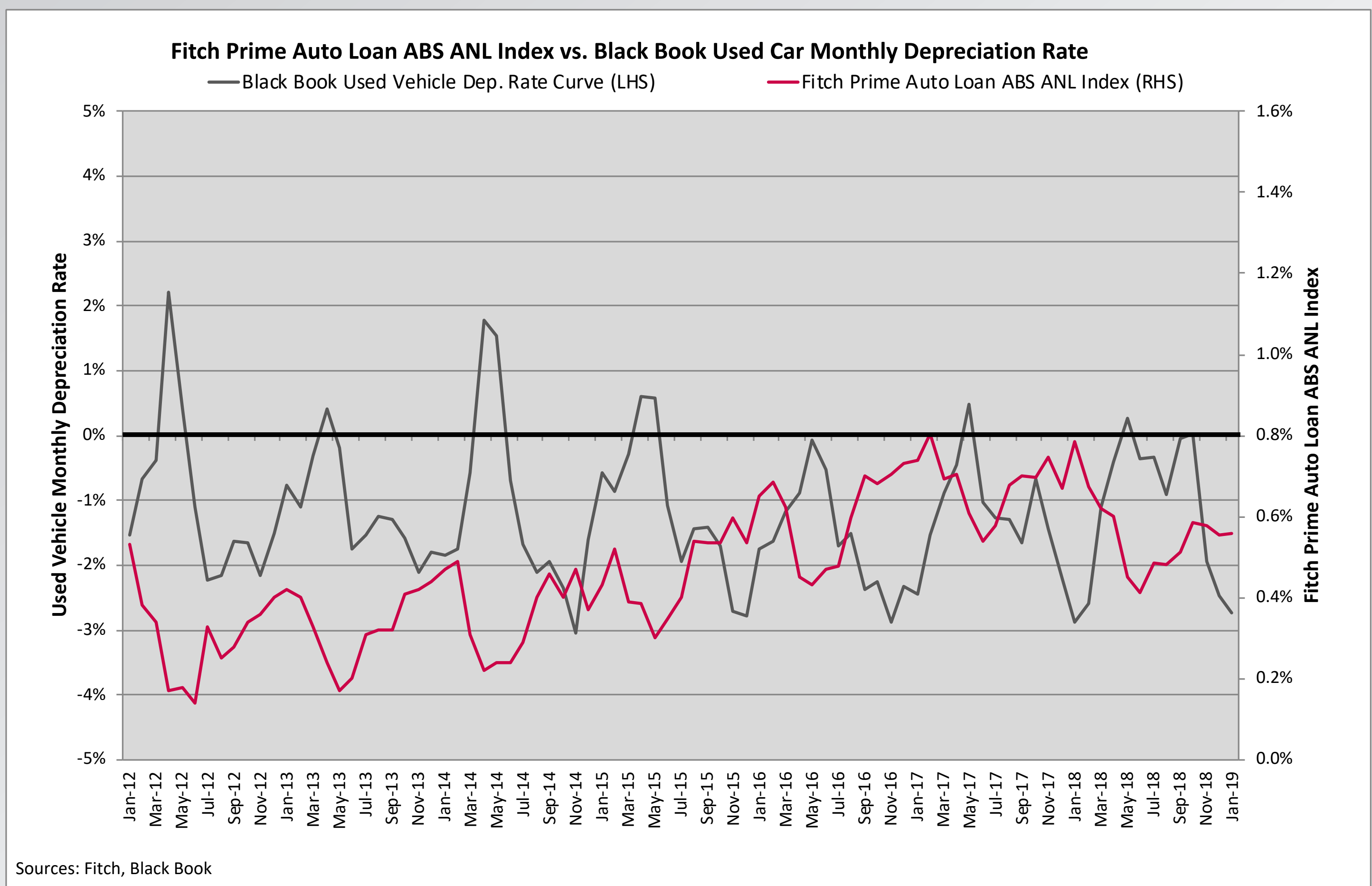

The Black Book Used Car Monthly Depreciation Rate tracks the monthly change in Black Book's published Wholesale Average value on volume-weighted two-to-six-year old vehicles, based on normal usage of a vehicle. The Compact Car segment experienced a strong demand for used vehicles in the spring and summer months of 2018. The seasonal lift in values that is typically seen in the spring coincided with tax cuts resulting in higher demand of affordable vehicles. On the other hand, there was no significant change in depreciation patterns of Full-Size SUVs.

Black Book's Depreciation Rate shows a strong correlation to the Fitch Auto Loan ABS Loss Indices as the primary reason for loss rate volatility is loss severity, driven by the depreciation pattern of the underlying vehicle in the loan.

## Prime Auto Loan ABS – Asset Performance Stable; Positive Rating Outlook

Fitch expects auto ABS to produce asset performance in 2019 on par with 2018, with delinquencies and losses rising marginally but comfortably within our expectations. Depreciation is expected to rise to more normal levels around 15% according to Black Book, and auto ABS loss severity will pick up slightly but not move loss rates materially. The outstanding 2016-2018 vintage transactions are producing loss rates within our initial forecasts, and improved over the weaker 2013-2015 vintage deals given tighter underwriting and better overall credit quality. Therefore, we see annualized net losses (ANL) rising to the 0.60%-0.80% range in 2019.

Areas Fitch is watching in 2019 continue to be longer term loans which are loans classified with terms of over 60 months, particularly terms of 72 months or higher. Extended loan terms naturally have lower equity and the loan pays down more slowly, and thus in the case of a default and repossession produce higher loss severity and ultimately losses, particularly if this occurs early in the contract life when there is negative equity. In both prime and subprime auto ABS pools, extended term loans typically make up a large majority of the loans over 50%-60% in securitized pools.



Sources: Fitch, Black Book

Another area investors should be watching in 2019 is competitive trends stemming from intense competition in a flat or declining auto sales environment, where auto lenders move down the credit spectrum to chase volume and market share by lowering consumer credit quality, extending loan terms, and increasing LTVs. These can all result in higher losses in auto ABS transactions. To date though, the two established large subprime lender's ABS platforms that Fitch rates (GMF and SCUSA) have shown discipline and kept overall credit quality and loan metrics steady in securitized pools in the 2017-2018 vintage deals, so we would expect lenders to continue to be disciplined in an economic environment that is healthy but not improving overall.

Prime auto loan ABS performance was solid in 2018, with delinquencies and losses remaining well below historical

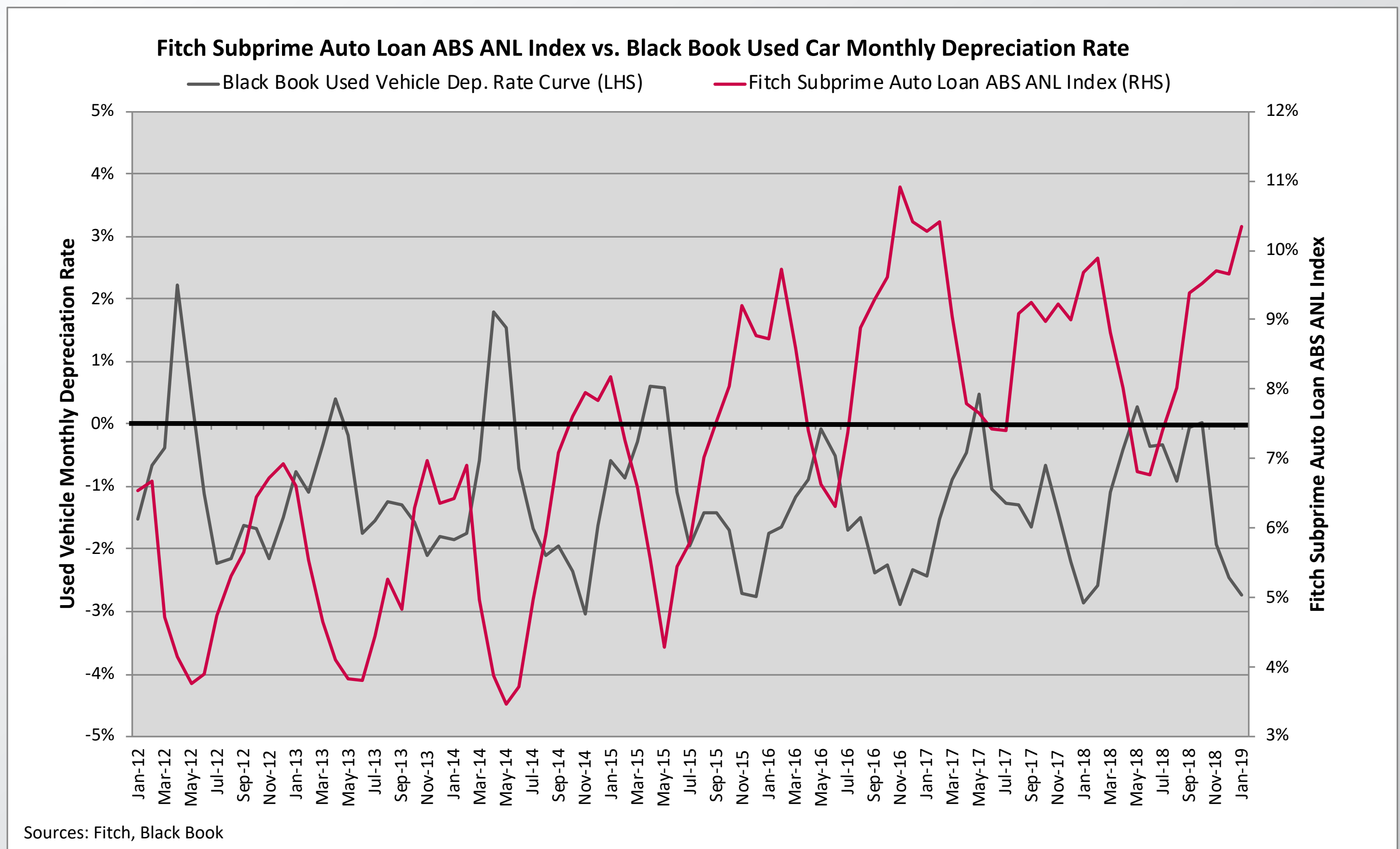
averages. Fitch's 60 day delinquency index ended 2018 at only 0.34%, below the historical average of 0.41% going back to 2004. The index averaged just 0.32% last year, down from 0.40% in 2017. We expect delinquencies would rise above 0.50% this year towards a more normalized level, and still be well below the peak 0.82% rate recorded during the 2008-2009 recession. ANL were at 0.56% at year-end 2018, and averaged 0.55% during the year down from 0.69% in 2017. The historical average was 0.92% going back to 2001, so losses can move higher towards the 1.0% in 2019 and still be well within historical norms.

Fitch's prime recovery rate index ranged from 51-67% last year, which was an improvement over 2017 (47%-61%), supported by lower than expected depreciation rates and overall strong used vehicle values. This lower severity trend was the big driver of asset performance in 2018, even as we expected severity to rise driven by notably higher used vehicle volumes entering the secondary market, but this did not materialize as manufacturers managed production well and lenders actively serviced their portfolios to absorb the higher volumes.

## Subprime ABS Losses Will Rise in 2019 But Stay Within Our Expectations; Ratings Stable

For the three subprime ABS loan platforms Fitch rates (AMCAR; SDART; and World Omni Financial's WOSAT platform), ANL should be within our expectations with marginally higher losses as annual depreciation rises to 15%. The outlook for asset performance is stable. Rapid amortization, high initial enhancement and excess spread levels will drive loss coverage and support continued positive rating actions on these platforms in 2019.

However, all the newer, smaller subprime ABS platforms which have weaker credit quality, including deep subprime obligors with FICOs under 600, and all of whom Fitch does not rate but are included in our indices, will drive ANL in 2019. These ~25 subprime auto loan ABS platforms now comprise the majority of our index at around 65% today, while in 2013 they totaled only 15%. Therefore, they will continue to elevate ANL rates in 2019 this year in the 10%-14% range. The peak level recorded was back in 2008-2009 at 12%-13%, so our prediction for ANL in 2019 is at this

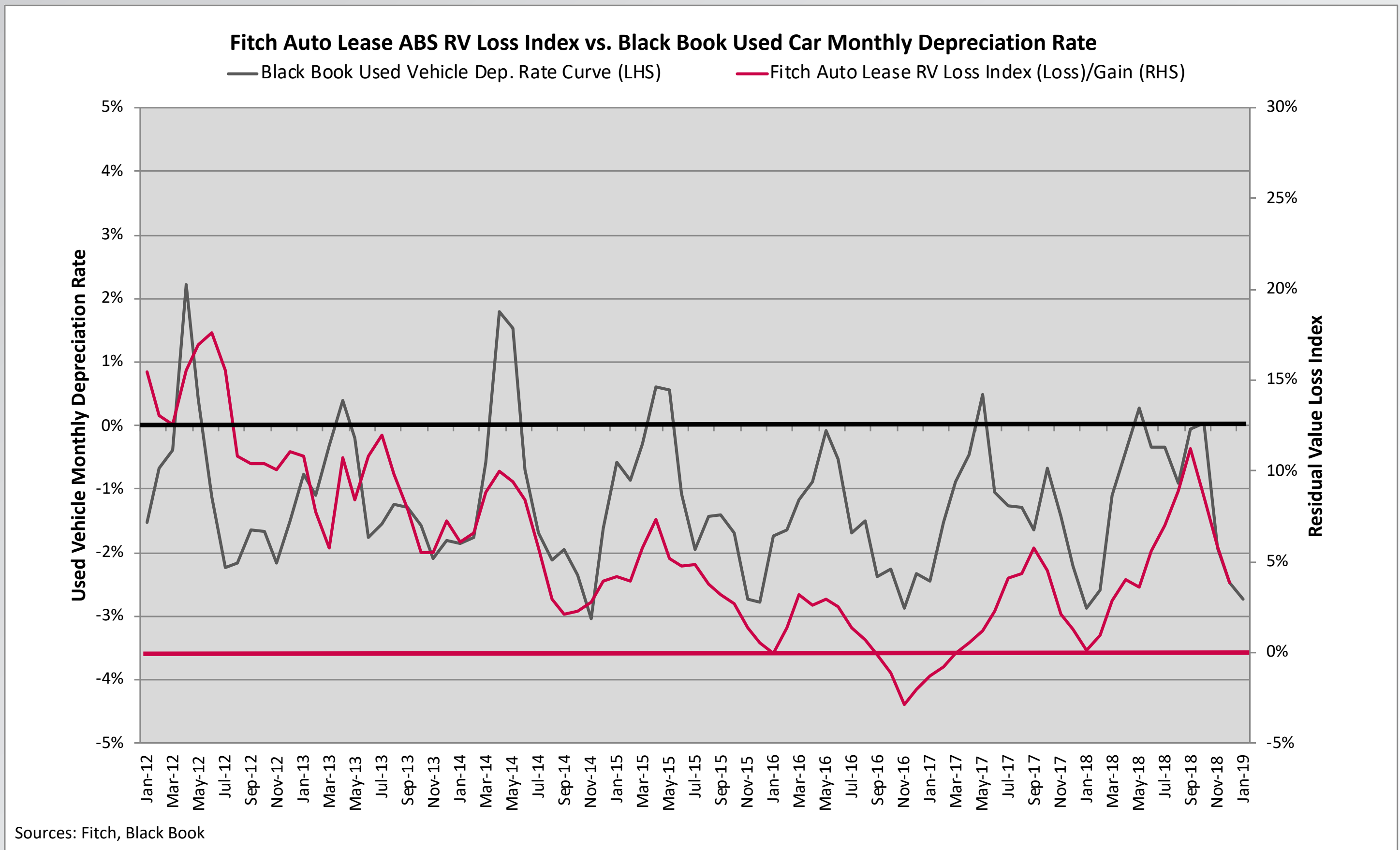


Sources: Fitch, Black Book

peak level, and one must consider that we are operating in a benign macro environment with solid used vehicle values, so rates could move rapidly higher for these more volatile subprime auto ABS credits, were there to be a material slowdown in the U.S. economy or notable decline in wholesale vehicle values.

## Auto Lease Return Volumes Rise Further in 2019; Rating Outlook Positive

Fitch's outlook for auto lease ABS asset performance is stable for 2019 while the rating outlook continues to be positive, as we expect lease residual value (RV) performance to be healthy even as used volume rises further. Our RV ABS index ended 2018 with a 3.83% gain, up from 1.28% at year-end 2017. We actually expected the index to perform worse and record low single digit losses or close to 0%, but with stronger than expected wholesale vehicle values this was not the case and the index outperformed our expectations in 2018.

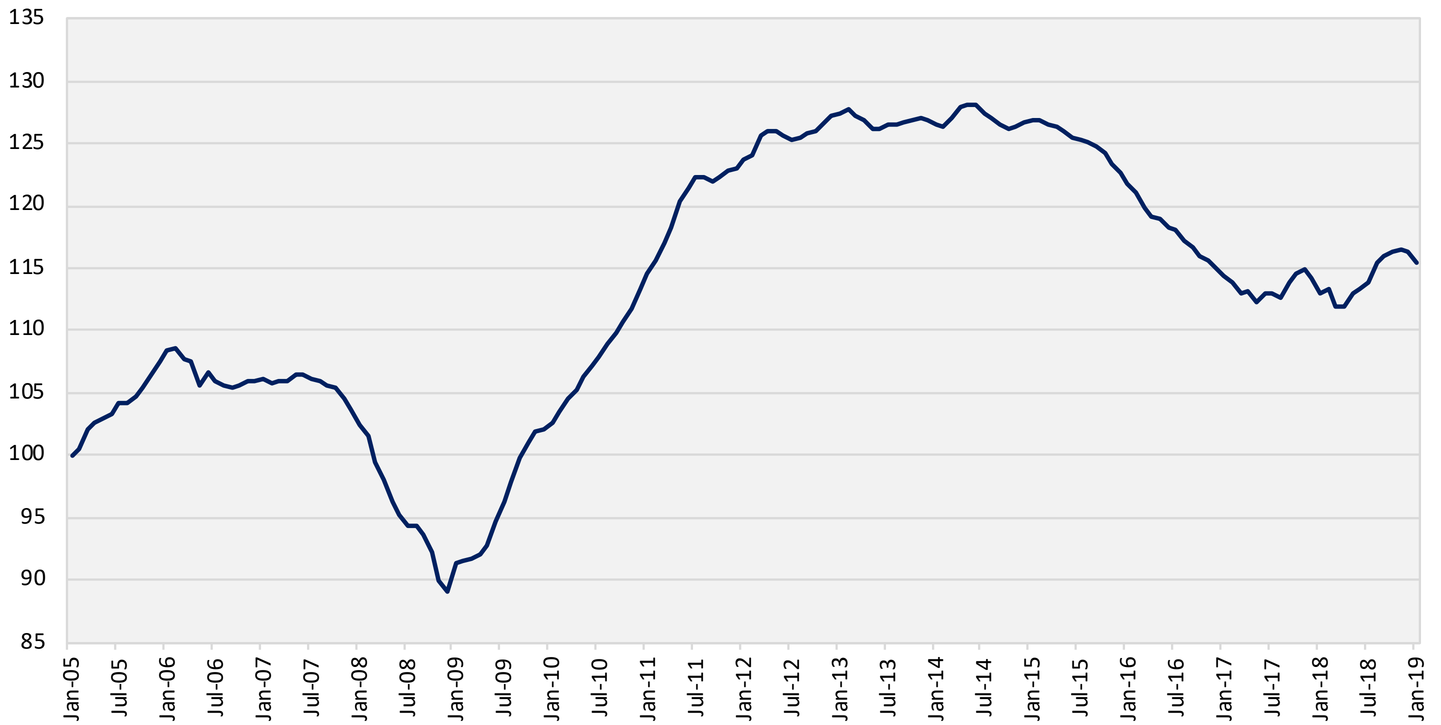


Sources: Fitch, Black Book

Fitch's lease ABS RV index saw vehicle returns rise to $7.3 billion in 2018, up from $7.1 billion in 2017, and this figure will rise a further 14% in 2019 to $8.5 billion as lease return volumes peak before we see them flattening out in 2020. This jump in lease returns will place pressure on residual performance and continue to constrain overall residual ABS performance, but the market should continue to adequately absorb this higher volume to an extent. We believe that high new vehicle transaction prices, along with interest rates creeping higher, has shifted consumers to cheaper 1-3-year old existing models, and this trend should repeat itself in 2019, particularly as consumer income levels won't keep up with new vehicle inflation.

## Black Book Used Vehicle Retention Index

The Black Book Used Vehicle Retention Index is designed to provide a consistent, representative and unbiased view of the pricing strength of the used vehicle market. The index is calculated using Black Book's published Wholesale Average value on two-to-six-year old used vehicles, as percent of typically-equipped MSRP. It is weighted based on registration volume and adjusted for seasonality, vehicle age, mileage, and condition. Black Book's Wholesale Average is a benchmark value for used vehicles selling in the wholesale auctions with vehicle quality in Average condition.




Age- , Mileage-, Condition-, and Seasonally-adjusted. Volume-weighted wholesale values on 2- to 6-year old vehicles as percent of original MSRP

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2005** | 100.0 | 100.6 | 102.2 | 102.6 | 102.9 | 103.4 | 104.2 | 104.2 | 104.7 | 105.4 | 106.5 | 107.6 |
| **2006** | 108.4 | 108.6 | 107.7 | 107.6 | 105.6 | 106.6 | 106.0 | 105.7 | 105.5 | 105.6 | 106.0 | 106.0 |
| **2007** | 106.1 | 105.9 | 105.9 | 105.9 | 106.4 | 106.4 | 106.1 | 105.9 | 105.7 | 105.4 | 104.6 | 103.6 |
| **2008** | 102.5 | 101.6 | 99.5 | 98.1 | 96.3 | 95.2 | 94.3 | 94.4 | 93.8 | 92.3 | 90.1 | 89.1 |
| **2009** | 91.4 | 91.5 | 91.8 | 92.1 | 92.8 | 94.7 | 96.4 | 97.9 | 99.7 | 101.1 | 101.9 | 102.2 |
| **2010** | 102.7 | 103.6 | 104.6 | 105.3 | 106.4 | 107.1 | 107.9 | 108.9 | 109.8 | 110.7 | 111.8 | 113.3 |
| **2011** | 114.6 | 115.6 | 117.0 | 118.3 | 120.3 | 121.5 | 122.3 | 122.3 | 122.0 | 122.3 | 122.8 | 123.0 |
| **2012** | 123.7 | 124.1 | 125.6 | 126.0 | 126.0 | 125.7 | 125.3 | 125.4 | 125.7 | 126.0 | 126.6 | 127.3 |
| **2013** | 127.4 | 127.7 | 127.2 | 126.8 | 126.1 | 126.2 | 126.4 | 126.6 | 126.6 | 126.9 | 127.1 | 126.8 |
| **2014** | 126.4 | 126.3 | 127.1 | 128.0 | 128.1 | 128.1 | 127.5 | 127.0 | 126.5 | 126.1 | 126.2 | 126.7 |
| **2015** | 126.8 | 126.8 | 126.6 | 126.4 | 125.9 | 125.5 | 125.2 | 125.1 | 124.7 | 124.2 | 123.3 | 122.7 |
| **2016** | 121.8 | 121.1 | 119.9 | 119.2 | 118.9 | 118.3 | 118.1 | 117.2 | 116.6 | 116.0 | 115.7 | 114.8 |
| **2017** | 114.5 | 113.9 | 113.0 | 113.1 | 112.3 | 113.0 | 113.0 | 112.6 | 113.9 | 114.6 | 115.0 | 114.1 |
| **2018** | 113.1 | 113.3 | 112.0 | 112.0 | 112.9 | 113.3 | 113.9 | 115.5 | 116.0 | 116.3 | 116.5 | 116.3 |
| **2019** | 115.4 | | | | | | | | | | | |

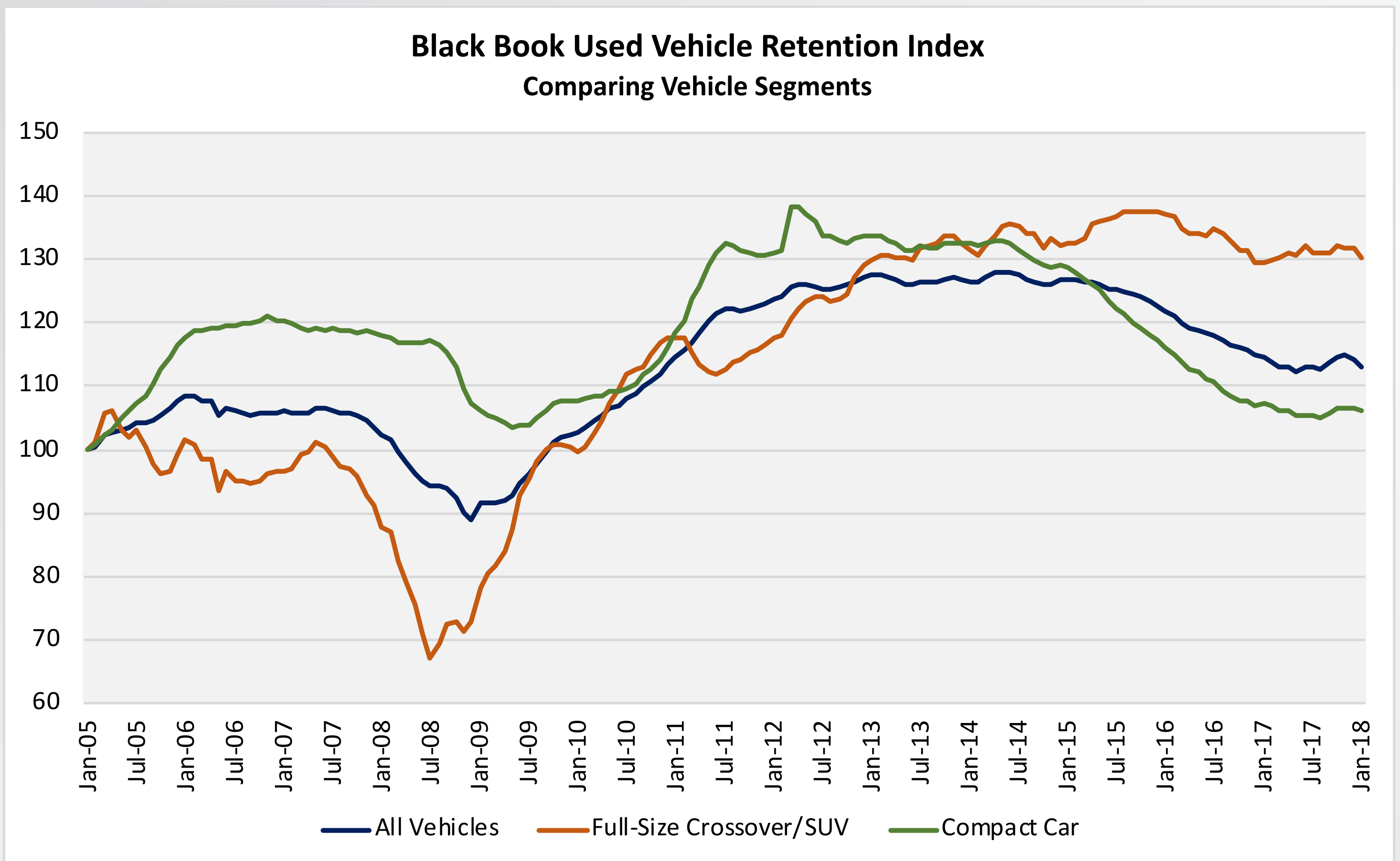
Source: https://www.blackbook.com/black-book-index for latest index data

The volume of used late model off-lease vehicles for sale has risen in the auto auctions in recent years, which increases the average sale price of a vehicle in auctions because late model vehicles are more expensive. To adjust for this trend, the Black Book Retention Index adjusts for vehicle age and measures used value as a percentage of the original MSRP of the vehicle, thus providing consistency in measuring retention strength across time. In addition, the mix of vehicle segments in the Index is weighted based on registration volume at the time, reflecting a representative and unbiased view of the overall auto market.

The Index dates back to January 2005, when Black Book published a benchmark index value of 100.0 for the market. During 2008, the index dropped by 14% while in 2016, the index fell by just 6.4%. During 2011, the index rose strongly from 113.3 to 123.0 by the end of the year as the economy picked up steam and used vehicle values rose higher. It remained relatively stable after 2011, rising slightly until May of 2014 when it hit a peak of 128.1.

The Index increased by 2.1% from 113.1 in January 2018 to 115.4 in January 2019. The Index has not seen this level of increase since 2012. During the months of May through September, the Index showed a strong lift, which is unusual for that time of the year. After a strong performance in 2018, the Index is forecasted to decline in 2019 as vehicles register slightly larger depreciation.

The first quarter will be key in setting the course for the remainder of 2019. The spring selling season, where many people replace their aging vehicles with government tax refund checks, has been strong the last few years and has proven to be a springboard for the remainder of the year. Many consumers plan for a vehicle purchase using their tax refund as a down payment. Last year, the spring tax refund season was a catalyst that led to some of the strongest demand for used vehicles since the recession ended in 2010. However smaller refunds in 2019 are likely to result in a lower lift in values in the spring.



When broken-down by segment, the Index shows very different trends. The chart above shows trends of two contrasting vehicle segments. Compact Cars experienced much better retention during the recession as an affordable alternative, while the Full-Size Crossover/SUVs dropped significantly in value, indicating a higher substitution risk in worsening economic conditions. In addition, the volatility of gasoline prices during 2008-2009 show interesting effects: when gas prices increase sharply, Compact Cars rise in value as the more fuel-efficient option becomes more attractive; and on the other hand, Full Size Crossover/SUVs tend to lose value with lower demand. It is interesting to note that the index values of both segments reached the same point in mid-2014, but diverged significantly thereafter.

**2018 Depreciation Rates by Segment**

| | | 2018Q1 3M Chg | 2018Q2 3M Chg | 2018Q3 3M Chg | 2018Q4 3M Chg | 2018 Full Year 12M Chg |
|---|---|---|---|---|---|---|
| | All Vehicles | -4.1% | -1.3% | -0.9% | -6.9% | -12.4% |
| CARS | Compact Car | -0.8% | 0.2% | -0.2% | -8.6% | -8.9% |
| CARS | Full-Size Car | -2.9% | -0.3% | -1.6% | -7.7% | -11.5% |
| CARS | Luxury Car | -7.0% | -4.0% | -3.1% | -6.6% | -18.5% |
| CARS | Mid-Size Car | -1.9% | -0.8% | 0.3% | -8.1% | -10.2% |
| CARS | Near Luxury Car | -6.6% | -2.9% | -2.3% | -7.8% | -18.2% |
| CARS | Premium Sporty Car | -5.0% | -1.1% | -1.7% | -5.3% | -12.6% |
| CARS | Prestige Luxury Car | -3.6% | -3.6% | -3.9% | -5.9% | -16.4% |
| CARS | Sporty Car | -2.8% | 3.1% | -2.1% | -8.7% | -10.1% |
| CARS | Sub-Compact Car | -0.8% | -0.6% | -1.5% | -6.9% | -8.7% |
| TRUCKS | Compact Crossover/SUV | -3.3% | -0.3% | -1.2% | -6.3% | -10.4% |
| TRUCKS | Compact Luxury CUV/SUV | -6.1% | -3.4% | -2.8% | -4.4% | -15.0% |
| TRUCKS | Compact Van | -3.1% | 1.6% | 0.2% | -4.4% | -5.1% |
| TRUCKS | Full-Size Crossover/SUV | -7.0% | -2.7% | -0.6% | -6.1% | -14.5% |
| TRUCKS | Full-Size Luxury CUV/SUV | -5.4% | -3.6% | -3.7% | -6.7% | -17.8% |
| TRUCKS | Full-Size Pickup | -5.1% | -0.5% | 0.7% | -5.0% | -9.4% |
| TRUCKS | Full-Size Van | -2.9% | -1.4% | -1.8% | -3.6% | -8.0% |
| TRUCKS | Mid-Size Crossover/SUV | -4.4% | -1.7% | -0.9% | -8.6% | -14.8% |
| TRUCKS | Mid-Size Luxury CUV/SUV | -5.0% | -4.5% | -1.6% | -5.8% | -15.6% |
| TRUCKS | Minivan | -5.7% | -1.9% | -0.8% | -9.7% | -17.9% |
| TRUCKS | Small Pickup | -3.2% | 0.0% | 0.2% | -6.1% | -9.0% |
| TRUCKS | Sub-Compact Crossover | -3.4% | 1.8% | -0.6% | -2.8% | -5.5% |
| TRUCKS | Sub-Compact Luxury CUV | -7.0% | -2.5% | -2.1% | -3.6% | -14.2% |

Source: Black Book Analytics
Note: Depreciation is measured using Black Book Wholesale Average value of used vehicle at the beginning of the year and tracking that value throughout the year for a vehicle with normal usage. It is volume weighted on 2- to 6-year old vehicles.

The key driver of that divergence was the substantial drop in gas prices in late 2014. Car values, beaten down during the past several years, showed a boost in the index in 2018. On the other hand, Full-Size Crossover/ SUVs index values have remained strong over the last four years and remained largely stable. The off-lease mix this year is expected to be more skewed toward truck segments rather than cars, as opposed to the mix in the recent years. We expect Crossover/SUVs to be rising in off-lease supply, particularly Compact Crossover/SUVs. This supply mix change will put more pressure on SUV values that have been strong in recent years.

## Depreciation Trends in 2018: Luxury Car Segments Depreciation Higher Than Normal

It was a banner year for used vehicle values. The replacement demand stemming from the hurricanes in late 2017 alleviated the excess supply in used vehicle inventory at the start of 2018. The tax cuts gave a boost to the spring selling season and the high levels of job growth kept the demand unusually high for used vehicles. This strength continued through the summer in 2018. Typically, Q3 is a slower quarter with declining values. However, the strength was carried broadly by several segments in Q3 with the overall vehicle depreciation of only 0.9% in three months.

The overall market looks quite strong, but when you dig deeper, you find there are significant differences in segment performance. Luxury sedan segments, namely, Near Luxury Car, Luxury Car, and Prestige Luxury Car segments performed relatively poorly in depreciation rates, with 16% or worse. Typically, luxury vehicles tend to have higher depreciation. However, the depreciation gap between mainstream brands and luxury brands was particularly high last year. Mid-Size Cars depreciated at a 10.2% rate, whereas Luxury Cars had 18.5% depreciation. That's an 8-percentage-point gap. Traditionally, luxury cars depreciate about 3 to 5 percentage points more than mainstream mid-size cars. This highlights the affordability concern that was front and center for used vehicles in 2018.

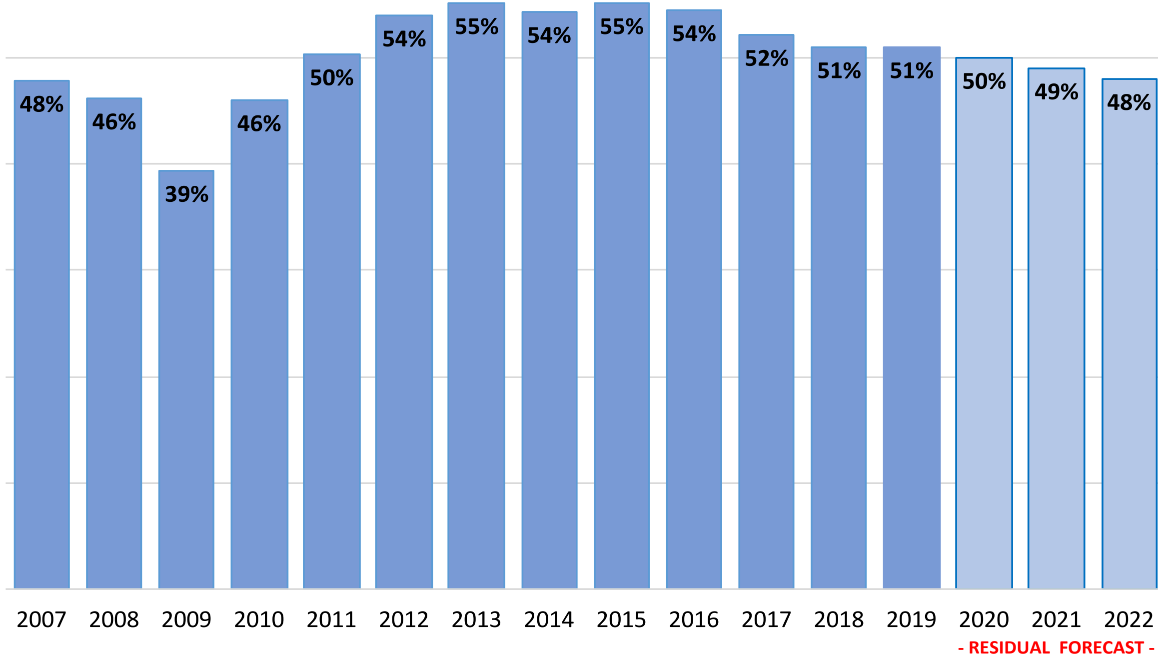
Compact Vans and Full-Size Vans did particularly well, depreciating only 5.1% and 8.0% respectively. Pickup trucks remained strong through the year, ending at about 9% depreciation in 2018. Affordable vehicles such as Sub-Compact Cars, Compact Cars and Sub-Compact Crossovers retained their values well, with depreciation rates of 8.7%, 8.9%, and 5.5%, respectively.

Given the spread and volatility across various segments, it becomes important for a lender to have a diversified portfolio. Portfolios concentrated in particular vehicle segments could experience higher volatility. With longer terms and softening used vehicle values, measuring portfolio equity on a regular basis becomes more important.

## Residual Forecasts to Get Lower

Our residual forecast is slightly lower than the actual retention trends seen recently on three-year old vehicles. Compact SUVs is one of the fastest growing vehicle segments. With increased competition and higher production volumes, we expect to see residual values declining in this segment in the coming years. The 2016 Model-Year vehicles retained 51% of their original typically-equipped MSRP, three years later in January 2019. We are projecting the used vehicle supplies to remain high in 2020 and the following years, and demand to soften as employment growth normalizes. This results in our projection of residuals to be lower in the coming years.

Drilling-down by specific segments, brands and specific vehicles may show different trends on residuals. As an example, for the Luxury Car segment, the three-year retention of 2016 Model-Year vehicles in 2019 is only 44% versus 51% for the overall market. Luxury Car manufacturers need to be strongly ahead of the curve on technology and new features as many of such options have now been commercialized in mainstream brands.




Black Book residual value forecasts show that values of 2019 Model-Year vehicles in January 2022 are expected to be three percentage points lower than the current retention trends averaged across all vehicle models. The residual values in three years, on average, are forecasted to drop to an average of 48% of typically-equipped MSRP. Our base assumptions assume that demand will normalize while used vehicle supplies will remain elevated. However, Scenario-Based Residuals by Black Book show a steeper drop in residual values based on the economic downturn scenarios.

## The Black Book-Fitch Vehicle Depreciation Report and Black Book Used Vehicle Data

This report is another in a series of joint-ventures between Black Book and Fitch. Black Book tracks used vehicle market depreciation rates providing an understanding of how vehicle prices impact automotive lenders and lessors, auto ABS transactions, consumers and other auto market constituents. Black Book collects and analyzes extensive wholesale data from auctions around the country. Black Book publishes residual value forecasts and current daily updated used market values. The report is issued on an annual basis.

## Data Available to Users

Certain data contained in this report and more detailed data is available to all users, including the charts and tables. Please contact Black Book or Fitch at the telephone numbers listed below.

## Black Book Used Vehicle Retention Index

The Index is updated on a monthly basis and can be accessed with both data and chart through the link on Black Book's website: https://www.blackbook.com/black-book-index/

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## Black Book

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